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ANTILLEAN ISOPTERA.

BY NATHAN BANKS.

WITH TWO PLATES.

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By NATHAN BANKS.

THIS paper is based on material in the Museum of Comparative Zoölogy, American Museum of Natural History, and that of the U. S. Bureau of Entomology and the U. S. National Museum. The principal part of the collection is that collected by Dr. W. M. Mann in Haiti; a considerable amount was taken by the late Mr. H. G. Hubbard in Jamaica; the other series are much smaller.

Not many species have been recorded from the West Indies, but in 1910 Dr. Nils Holmgren in a revision of the American *Entermes* described a number, mostly based on the nasuti only; several of his species are certainly only forms of the old *Termes morio*, a species unrecognized by him; I believe I have correctly placed all of the Holmgren species.

As a whole the West Indian termite fauna is simply an extension of the South American fauna, and only slightly modified; all the genera occur in South America. The majority of the species are found in the larger islands, Cuba and Hispaniola (Haiti and San Domingo). Thirteen species, eight genera, are known from Cuba; from Hispaniola twelve species, seven genera; six species are known from Porto Rico, and eight species from Jamaica. In all, twenty-six species and eleven genera. One species, *Nasutitermes morio*, occurs practically all over the West Indies, but not the Bahamas; *Neotermes castaneus* is also widely spread, but is not known from many of the lesser Antilles. The genus *Constrictotermes* is practically confined to Haiti. The Antillean termites may be arranged in two families as follows:

1. Clypeus not bilobed; no fontanelle; wings not ciliate on margin; soldier never with nasute head; tibia with three apical spines; mandibles toothed.....*Kalotermitidae.*
Clypeus with median groove; fontanelle more or less distinct; wings usually ciliate on margin; soldier with but two apical tibial spines, head often nasute, mandibles often unarmed.....*Termitidae.*

KALOTERMITIDAE.

Adults.

1. Median vein faint, about one half way from radial sector to cubitus.
Kaloterмес.
 Median vein as dark as radius, and close to radial sector all the way out.
Neoterмес.
 Median vein faint, at first well separated then bending up to unite with
 the radial sector before tip.....*Cryptoterмес.*

Soldiers.

1. Head with large cavity in front; mandibles short, armed alike.
Cryptoterмес.
 Not so 2
 2. Femora much thickened; third antennal joint more or less differentiated
 from others.....*Kaloterмес.*
 Femora slender; third antennal joint simple as the others.....*Neoterмес.*

CRYPTOTERMES.

Only one species has as yet been recorded from this region.

CRYPTOTERMES BREVIS (Walker).

CUBA: (Wright; Osten Sacken); Cayamas, 16 February (Schwarz);
 Santiago de las Vegas (Cardin). DOMINICA: Laudet, June (A. M.
 N. H.) ST. THOMAS.

NEOTERMES.

Soldiers.

1. Pronotum angularly emarginate in front; head much elevated above
 pronotum.....*elevatus.*
 Pronotum roundedly emarginate in front; head but little above pronotum.
castaneus.

NEOTERMES CASTANEUS (Burmeister).

CUBA:—Cayamas, 27 May (Schwarz); (Gundlach; Wright).
 HAITI:—Diquini, November (Mann). JAMAICA:—Kingston (Hub-
 bard); Wag Water River (Hubbard); Port Antonio, 24 November,

at light (A. E. Wight); Bog River, 6 April (A. E. Wight). MONT-SERRAT, 23 March (Hubbard).

In some specimens the ocelli seem more oblique and the eye rather nearer to the margin of the head as in Plate 1, fig. 10.

NEOTERMES ELEVATUS, sp. nov.

Type.—A. M. N. H. *Paratype*.—M. C. Z. 10,075. DOMINICA: Laudat, June.

Soldier.—Head yellowish, browner in front; mandibles red-brown to black, rest of body pale. Head but little longer than broad; sides slightly rounded, broadly rounded behind, in the middle of front plainly depressed, above clothed with rather long, erect hairs; mandibles large, stout, sharp-pointed, almost as long as width of head, the left one with three teeth as usual, right with two teeth near middle; labrum short; clypeus moderately long, rounded at tip; antennae 12-jointed, third joint not modified nor longer than second; gula hardly one half as wide in middle as in front. Pronotum twice as broad as long, angularly emarginate in front, sides rounded into the hind border, above with many fairly long bristles; cerci distinct; legs short, femora slender, hind femur about four times as long as broad. The head is so attached as to be much above the level of the thorax. Length of head, exclusive of mandibles, 2 mm.; width 1.5 mm.

KALOTERMES.

Winged.

1. Head and thorax red-brown, small species not 10 mm. long *posticus*.
Head and thorax pale yellowish; larger species 2
2. Body with bristly hair *schwarzi*.
Body with only very short fine hair *jouteli*.

Soldiers.

1. Third antennal joint scarcely if at all longer than second 2
Third antennal joint plainly longer than the second 3
2. Eyes visible, black *mona*.
Eyes not noticeable, hyaline *schwarzi*.
3. Eyes visible, black, gula very broad *jouteli*.
Eyes not noticeable, hyaline, gula very slender *posticus*.

KALOTERMES JOUTELI Banks.

CUBA:— 14 kilometers north of Vinales, 16–22 September (A. M. N. H.). BAHAMAS:— Andros, Big Wood Key, 16 May (A. M. N. H.).

KALOTERMES MONA, sp. nov.

Type.— A. M. N. H. *Paratype*.— M. C. Z. 10,076. MONA ISLAND, 21 February.

Soldier.— Very close to *K. schwarzi*, colored the same; antennae with the third joint about as long as next two together, only a little shorter than in *K. schwarzi*, and the gula narrow as in that species, the hind femora also greatly swollen. It differs from *K. schwarzi* in having a proportionally broader head, in that the eyes are black and distinct, and in having a broader pronotum, the latter more than twice as broad as long, less deeply emarginate, and the lateral parts of front margin not as much rounded as in *K. schwarzi*. From *K. jouteli* it differs in the narrow gula, and longer third joint of antennae. Length of head (exclusive of mandibles) 9 mm.

KALOTERMES SCHWARZI Banks.

CUBA, (Poey coll.). JAMAICA:— Bog River, 25 February to 29 April, at night (A. E. Wight).

Common in the southern parts of Florida.

KALOTERMES POSTICUS (Hagen).

JAMAICA: Botanical Station, Cinchona, 24 February, under bark of dead pine (Grossbeck, A. M. N. H.).

Soldier.— Head yellowish; mandibles red-brown, tips black, pronotum faintly brownish, body rather a dull yellowish, legs and antennae pale. Head about twice as long as broad, sides parallel, scarcely convex, broadly rounded behind, in front rather suddenly declivous, clypeus subquadrate; mandibles not as long as width of head, stout, toothed about as usual; antennae short, hardly longer than width of head, third joint not modified; eyes not noticeable; pronotum more than twice as broad as long, concave in front, slightly

convex behind, sides rounded, hardly narrowed behind; head and body with scattered moderately long, erect hairs; legs short, hind femora much swollen. Length of head, 3 mm.

This may not be the soldier of *K. posticus*; if not it is new, and the soldier of *K. posticus* still unknown. Winged forms are from ST. THOMAS (Möriz), CUBA (Poey), and HAITI (Uhler).

TERMITIDAE.

Winged.

1. Head with a small nose-like process over clypeus. *Rhinotermes*
Head without such process. 2.
2. Wings without marginal cilia; no apparent median vein. . . *Prorhinotermes*.
Wings ciliate on outer and hind margins; median vein present. 3
3. No ocelli. *Leucotermes*.
Ocelli present. 4
4. Third antennal joint plainly longer than the second; fontanelle slender,
elongate or faintly triangular. *Constrictotermes*.
Third antennal joint barely if any longer than the second. 5
5. Clypeus three or four times as long. 6
Clypeus twice as broad as long; above deeply indenting the lower margin
of the face. 8
6. Fontanelle elongate triangular; some muscular impressions below fon-
tanelle; pronotum usually much narrowed behind. . . *Nasutitermes*.
Fontanelle not elongate triangular. 7
7. Fontanelle distinct. *Coptotermes*.
Fontanelle indistinct or absent. *Eutermes*.
8. Mandibles longer than usual; fontanelle indistinct or absent.
Anoplotermes.
Mandibles of normal length, or short; fontanelle small but distinct. . . . 9
9. Cubital vein ends near tip of wing. *Mirotermes*.
Cubital vein ends much before tip on hind margin. 10
10. Pronotum twice as broad as long. *Amitermes*.
Pronotum not twice as broad as long. *Armitermes*.

The last two genera are not yet recorded from the West Indies, but occur in Panama.

Soldiers.

1. No soldier caste. *Anoplotermes*.
Soldiers present. 2
2. Head nasute, mandibles not visible above. 3
Head not nasute; or at least mandibles distinct. 6
3. Nasute process forked at tip. *Rhinotermes*.
Nasute process not forked. 4

4.	Mandibles long and distinct.....	<i>Armitermes</i> .
	Mandibles very small, hardly noticeable.....	5
5.	Head more or less constricted below the middle.....	<i>Constrictotermes</i> .
	Head not constricted.....	<i>Nasutitermes</i> .
6.	Mandibles toothed.....	7
	Mandibles not toothed.....	9
7.	Mandibles toothed unlike.....	<i>Rhinotermes</i> .
	Mandibles toothed alike.....	8
8.	Head more or less nasute.....	<i>Armitermes</i> .
	Head not nasute.....	<i>Amitermes</i> .
9.	Head broader behind than in front.....	10
	Head not broader behind.....	11
10.	Fontanelle large, close to clypeus.....	<i>Coptotermes</i> .
	Fontanelle remote from clypeus.....	<i>Prorhinotermes</i> .
11.	Mandibles down-curved, labrum bifid.....	<i>Mirotermes</i> .
	Mandibles not down-curved; labrum entire.....	12
12.	Pronotum broadest on front margin, subrectangular.....	<i>Leucotermes</i> .
	Pronotum broadest near middle, diamond shaped.....	<i>Eutermes</i> .

PRORHINOTERMES SIMPLEX (Hagen).

Described from CUBA (Vienna Mus.); one specimen in Hagen collection, CUBA (Poey). In the U. S. N. M., there are specimens from Santiago de Las Vegas, CUBA (P. Cardin coll.), Kingston, JAMAICA (Ritchie coll.); also occurs in Florida.

RHINOTERMES MARGINALIS (Linné).

Soldier — *large form*. — Head bright yellowish, mandibles red-brown; abdomen and legs pale yellowish. Antennae longer than head, 17-jointed, third joint longer than second. Head plainly longer than broad behind, narrowed to the front, sides convex, labrum elongate, rounded on tip, mandibles stout, bent before middle and on inner side toward base with very large, stout tooth. Head with a few short, erect bristles, gula narrowed in middle, a little wider behind, almost twice as wide in front; pronotum narrower than head, corners bent back a little, sides much sloping to the slightly emarginate hind border; legs especially tibia very slender; each segment with row of erect bristles.

Soldier — *nasute form*. — Head broader in front part, tapering behind, with a long slender snout, slightly widened near tip; each side on the head are four bristles; antennae longer than head, 16-jointed,

third joint longer than second; pronotum convex on front margin, corners nearly angulate, sides rounded into the hind margin; legs very long and slender; abdomen bristly, as in the large soldier.

HAITI:—Grande Riviere; January; Milot, January (Mann); Sanchez, 21 May (A. M. N. H.).

ANOPLOTERMES SCHWARZI, sp. nov.

Type.—U. S. N. M. CUBA:—Cayamas, 19 May (Schwarz).

Winged.—Similar to *A. fumosus* Hagen, but head and especially the pronotum broader, and the ocelli are a little farther from the eyes than in that species. The pronotum is about as broad as the head between the eyes, the front margin nearly straight, sides rounded evenly into the rounded hind border. The median vein of wing has a rather long apical fork, the cubitus ten branched; behind the radial sector toward the tip are faint traces of cross-veins running nearly one half way to median vein.

LEUCOTERMES TENUIS (Hagen).

BAHAMAS:—common at various places. CUBA:—Cayamas, 6 May (Schwarz). HAITI:—Manneville, January (Mann). PORTO RICO:—Aibonito, 25 July (A. M. N. H.). JAMAICA, (Hubbard).

MIROTERMES HISPANIOLAE, sp. nov.

Type.—M. C. Z. 10,077. HAITI:—Diquini, November (W. M. Mann). *Paratype*.—CUBA: 9 kilometers south of Pinar del Rio, September 12-23 (A. M. N. H.). The adult is known to me from Panama.

Soldier.—Head yellowish, blackish around front margin, mandibles black, antennae pale yellow; body and legs still paler. Head about one and two thirds times as long as broad, sides parallel, broadly rounded behind, truncate in front, with a median triangular process in front part reaching to front margin, clothed with scattered fine, short, erect hairs. Antennae 14-jointed, much longer than head; labrum hyaline, longer than broad, apical corners prolonged in a bristle; mandibles about as long as head, slender, down-curved, the left one rather thicker near tip, the right with a more slender point; gula about twice as wide behind as in middle, indeed a little more in front than behind. Length of head 1.9 mm.

Differs from *N. riograndensis* Müller (type before me) in smaller process, on front of head; the head is narrower than in *N. fur* Silvestri.

EUTERMES DEBILIS Heer.

This species was described from specimens in gum-copal, and Hagen identified it with specimens from PORTO RICO. I have designated it as the type of the genus.¹ It is a Microcerotermes and thus Eutermes will replace that name. The species is closely related to *M. struncki* from South America (types of which are before me). It occurs more commonly in Panama, and in a paper on Panama termites I describe the soldier and adult. Doubtless *Eutermes thcobromae* Desneux, from ST. THOMAS, is the same species.

NASUTITERMES.

Soldiers.

1. Head with about ten or fewer hairs. 2
Head with many more hairs. 5
2. Head with ten hairs, two each side near vertex; color of head pale.
intermedius.
Head with six or less hairs, one each side near vertex; color darker. 3
3. Four distinct hairs above base of nose, nose much shorter than head. . . . 4
Hairs above base of nose very small, nose nearly as long as head which is pale. *hubbardi.*
4. Head a little longer than broad, smaller, abdomen more or less brown above. *morio.*
Head about as broad as long, larger, abdomen yellowish above. . . *sanchezi.*
5. Head pale yellowish. *ripperti.*
Head brownish. 6
6. Head blackish brown, not hairy on the posterior sides. *pilifrons.*
Head reddish brown, hairy all over, even on posterior sides, shorter nose. *creolina.*

Winged.

1. Wings blackish; thorax blackish; ocelli more than diameter from the eye.
morio and *sanchezi.*
Wings and prothorax more yellowish; ocelli less than diameter from the eye. 2

¹ Several authors have previously selected a type-species for Eutermes; but in each case it has been a species not originally included in the genus. I have therefore selected the species most fully described by Heer, and the one species not fossil.

2. Eyes smaller; seen from side plainly much more than diameter from vertex; smaller species. *creolina*.
Eyes larger; seen from side hardly diameter from the vertex. 3
3. Pronotum obliquely narrowed on sides; more than twice as broad in front as long; antennae pale yellowish. *ripperti* and *pilifrons*.
Pronotum rounded on sides, and not so much narrowed behind; not twice as broad in front as long; antennae more brownish. *lividus*.

The winged specimens of several species are extremely close, and I shall not try to tabulate these; in the case of *N. morio* and *N. sanchezi*, it may be that they are all one species.

NASUTITERMES PILIFRONS Holmgren.

The adult taken with the hairy, dark-headed nasuti of Jamaica is practically identical with *N. ripperti*, and if the soldiers did not differ in color I should consider them the same species. The eyes are more circular, the ocelli usually more circular and a trifle smaller, and the vertex is more apt to be shining, the wings are rather more yellowish, and fewer long hairs on the head. The soldier described by Holmgren is very close to *N. cubanus*, except in color.

JAMAICA:—Hubbard took queens with soldiers in nest 3 at Dromilly, in April. Also at Constant Springs, 5 April; Port Maria, April, and Kingston (Maxon, U. S. N. M.) Port Antonio, and Hope Gardens, 22 February (Grossbeck, A. M. N. H.); Balaclava, 20 April, at night (A. E. Wight). It makes nests in trees.

Described from Curaçao, West Indies, and also known from Panama; probably does not occur in the same islands as *N. ripperti*.

NASUTITERMES RIPPERTI (Rambur).

The pale area between median and cubital vein is distinct near base, but beyond is faint or absent. The pronotum is pale yellow, in strong contrast to the reddish brown head. The eyes are plainly elliptic, longer in a diameter toward the upper part of face, the large ocelli close to the eyes, slightly elongate, and about one and one half to one and one third diameter from the front margin of head. The head is clothed with fine, appressed, whitish hair, and a few scattered, longer, erect hairs.

The soldier is described by Holmgren as *E. cubanus* and *E. baha-*

mensis; the minute differences given break down in a large series; adults have been taken with soldiers in both islands, so that there can be no doubt that it is Rambur's species, moreover it appears that Hagen's specimens were compared with Rambur's type.

BAHAMAS:—New Providence Nassau, and Dry Key, 13 May; Andros Isl., Mangrove Key; Nicholl's Town, 14 May (A. M. N. H.). CUBA.—Cayamas, 13 May (Schwarz); Cerro Cabras, 11 Sept. (A. M. N. H.); St. Trinidad; and no exact locality (Osten Sacken).

NASUTITERMES LIVIDUS (Burmeister).

Smaller throughout than *N. ripperti*, the color about the same except that the pronotum is not or but little paler than the head; the head not as dark as in *N. ripperti*, the ocelli are, in proportion, much larger, near to the eyes, oblique and elongate, scarcely their length from the front margin of the head, the tip of the labrum is rounded, the pronotum is proportionally narrower across the front than in *N. ripperti*; wing-scales short, the wing-membrane not noticeably hairy; the head is more densely long-haired all over than in *N. ripperti*.

The soldier is still unknown.

A type in the Hagen collection from Port au Prince, HAITI, from the Berlin Mus. (Ehrenberg), and many from Jérémie, HAITI (Weinland). CUBA:—Cayamas, 12-18 May (Schwarz).

NASUTITERMES CREOLINA, sp. nov.

Type.—M. C. Z. 10,078. *Paratype*.—A. M. N. H., St. THOMAS, (Hagen coll.). TRINIDAD (Beebe coll.). PORTO RICO. VIEQUES, 27 July (Craft, U. S. N. M.).

Soldier.—Head red-brown, or a little darker, rest pale yellowish, sometimes with traces of brown, front margin of pronotum brown. Head nearly circular, except for the nose which is short, hardly as long as one half the diameter of the head, densely hairy all over above and on the posterior sides, and down on the nose; most of the hairs rather short. Antennae moderately long, third joint plainly much longer than the second; fourth shorter than the third, but longer than the second; body and legs densely hairy. Length of head 1.8 mm.

Differs from *N. pilifrons* in paler head, shorter nose, and hairy posterior sides of head. It is probably what Holmgren records from St. Thomas as *E. acajutlae*, if he had nasuti from there; however, his adult from Central America is different, and different from what I

consider the adult of *N. creolina*. The adult *E. acajutlae* of Holmgren from San Salvador is extremely close to and probably identical with the *E. ripperti*.

The winged termite which I consider the adult of *N. creolina* is from Montserrat (Hubbard).

Winged.—Head brownish to dark brown; pronotum pale, rather yellowish, rest of body yellowish beneath, brownish above, legs and antennae pale. Wings brownish yellow as in *N. lividus* and *N. ripperti*. Head hairy; eyes rather small, less than diameter from vertex, ocelli nearly circular, less than their diameter from the eyes, fully two diameters from lower margin of head; antennae with second, third, and fourth joints all short and subequal. Pronotum shaped similar to *N. lividus* not twice as broad in front as long, the sides not much narrowed behind, and rounded into hind border. Length to tip of wings 12 to 13 mm.

Nearest to *N. lividus*, but pronotum paler and ocelli more circular and further from the front margin of head, and smaller than in that species, and differs from all allied forms in the vertex extending much higher above the eyes.

NASUTITERMES INTERMEDIUS, sp. nov.

Type.—M. C. Z. 10,079. TRINIDAD: Arepo Savanna, Cumuto, under Sphagnum (Roland Thaxter).

Soldier.—Head pale, brownish yellow, nose a trifle darker, pronotum and antennae yellowish; abdomen and legs hardly yellowish, nearly hyaline. Head a trifle longer than broad, with a fairly long nose, in front with about ten erect, rather long hairs, two each side toward vertex, four in a row near base of nose and one each side lower down; hair on abdomen extremely short, hardly noticeable, but longer bristles on hind margins; antennae of moderate length, third plainly longer than second, but not twice as long, fourth hardly as long as second, others slightly longer. Length of head 1.35 mm.

Worker.—Has the usual large dark spots on upper head each side, not as dark as in *N. morio*, and each spot shows trace of faint oblique line from the vertex downward; head with many minute hairs.

NASUTITERMES HUBBARDI, sp. nov.

Type.—M. C. Z. 10,080. JAMAICA, (Hubbard). CUBA:—Caboda (Mann).

Soldier.—Head pale brownish yellow, nose hardly darker, pronotum

rather brown on front edge, rest and abdomen above yellowish; antennae also yellowish; legs pale. Head broad, and plainly a little flattened across vertex, seen from in front; nose large and very long, in side view about as long as head; two long bristles near vertex, extremely small ones below at base of nose, hardly noticeable; elsewhere on head are extremely minute hairs, scarcely visible; pronotum with only short hairs on margin; abdomen with short hair, and longer erect bristles on hind margin of segments; antennae long, third joint plainly longer than the second, fourth and fifth joints shorter than third, about equal to second, others beyond rather longer. Length of head 1.7 mm.

Lives in a small nest on ground. Near to *N. surinamensis* Holmgren, but no long hairs at base of nose nor on margin of pronotum, and vertex not as convex, and color paler than in that species.

NASUTITERMES MORIO (Latreille).

This species is common over the entire West Indian area, and a form almost the same (*N. cornigera* Motschulsky) occurs in Panama. Holmgren has described the adult as *E. costalis*; but all specimens do not show the pale area in the wing; the soldier is described by Holmgren as *E. haticensis*; his *E. martiniquensis* is also the same, and also *E. sanctae-luciae*. Adults and soldiers have been taken in the same nest in various cases.

As might be expected, a common and widely spread species shows some variation. The distance of the ocelli from the eyes varies somewhat, and in the soldier the length of the nose, and the comparative length of the third joint of the antennae also varies; however, after examining thousands of specimens I can find no definite characters to separate races or subspecies and am much inclined to include under this species the *N. sanchezi* of Holmgren.

CUBA:—(Wright) Bolondron, February (Wheeler); Cayamas (Schwarz). HAITI:—Grand Anse (Uhler); Cap Haitien, January; Milot, January; Ennery, January (Mann); MARTINIQUE, (Hagen collection). DOMINICA:—Roseau, 12 March (Hubbard); Fore Hunt Flat, 27 June; Laudat; Portsmouth, June (A. M. N. H.). MONTSERRAT, March (Hubbard). PORTO RICO:—Aibonito, 1-3 June; Cayey, 30 May; Coamo Springs, 5-7 June; Adjuntas 1-3 June; Arecibo, 13 July (A. M. N. H.). ST. CROIX, 4 June (A. M. N. H.). MARTINIQUE:—Fort de France, 27 June (A. M. N. H.). ANTIGUA: St. John's, 5 June (A. M. N. H.); 12 February (U. S. N. M.). TRINIDAD, August Busck, (U. S. N. M.).

NASUTITERMES SANCHEZI Holmgren.

This is practically identical as regards adults with *N. morio*; and the soldiers are closely related. As a rule the adult is not as black-winged; the ocelli are larger, slightly nearer to the eyes, but there is variation in each form in this regard.

Many specimens of this form have been examined as follows:—

HAITI:—(Uhler); Diquini, November; Petionville, November; Port au Prince, December; Manneville, December, (Mann); Sanchez River, 22–27 May (Amer. Mus.). SAN DOMINGO, (Busck). PORTO RICO:—(Moritz coll.); Rio Piedras (Barrett, U. S. N. M.). JAMAICA:—Dromilly (Hubbard coll.) queens taken from nests nos. 1 and 2, nests on ground; also Castleton, and Constant Springs, both in early April (Hubbard coll.). The latter lots have adults, typical *N. sanchezi*, but soldiers approach *N. morio* in having longer nose and more narrow head than typical *N. sanchezi*. Port Antonio (A. M. N. H.); Balaclava, 24 April, at night (A. E. Wight).

CONSTRICOTERMES.

Soldiers.

- | | | |
|----|---|---------------------|
| 1. | Third antennal joint plainly longer than the second; antennae brown | 2 |
| | Third antennal joint not longer than the second | 4 |
| 2. | Head but slightly constricted, yellow-brown | <i>discolor.</i> |
| | Head plainly constricted | 3 |
| 3. | Head dark brown | <i>antillarum.</i> |
| | Head pale yellow | <i>pallidiceps.</i> |
| 4. | Head and antennae brown, femora brownish | <i>toussainti.</i> |
| | Head, antennae, and legs pale yellowish | <i>flaveolus.</i> |

CONSTRICOTERMES ANTILLARUM Holmgren.

Described from HAITI; Dr. Mann collected it at Diquini in November.

CONSTRICOTERMES PALLIDICEPS, sp. nov.

Type.—M. C. Z. 10,081. HAITI:—Port au Prince (Mann). Also taken by Dr. Mann at Diquini; St. Marc; Manneville.

Soldier.—Head clear, pale yellowish, nose darker, reddish; antennae brownish as in *C. antillarum*, dorsum of abdomen dull brownish

yellow, legs pale, femora scarcely darker. Head plainly constricted as in *C. antillarum*, sparingly clothed with short hairs, and among them a few longer ones, nose slender, as long as width of head at constriction, hairy at tip; antennae long, third joint plainly longer than second, fourth, fifth, and sixth, and beyond as long as third, more than twice as long as broad. Abdomen with short hairs, and longer bristles on margin of segments. Length of head 1.2 to 1.3 mm.

Closely related to *C. antillarum*, but the very pale head distinguishes it; in numerous specimens of both forms I have seen no intermediates.

CONRICTOTERMES TOUSSAINTI, sp. nov.

Type.—M. C. Z. 10,082. HAITI:—Milot, January (Mann).

Soldier.—Head brown, not especially dark, nose black; antennae brown, as dark as head; abdomen brown above; femora and tibiae more or less infuscated, especially the front femora. Head constricted, but not as much as in *C. antillarum*, clothed with fairly numerous short hairs; antennae short, second joint fully one half of the first, third no longer than second, fourth plainly longer than the third, joints beyond are short, hardly twice as long as broad, much shorter than in *C. antillarum*; abdomen with short hair, few longer bristles on tips of segments; nose hardly as long as width of head at constriction. Head 1.3 mm. long.

CONRICTOTERMES FLAVEOLUS, sp. nov.

Type.—M. C. Z. 10,083. HAITI:—Petionville, November; (also taken by Dr. Mann at St. Marc, January, Ennery, January, and Manneville, December (Mann).

Soldier.—Head pale yellowish, nose darker, more reddish; abdomen yellowish above; legs and antennae whitish. Head only a trifle constricted, but by careful observation from in front it is seen to be slightly so; clothed above all over with fine, short hair; antennae short, the third joint no longer than the second, fourth and fifth no longer, sixth and beyond rather longer, but not twice as long as broad. Nose slender, about as long as width of head at constriction, fine hair also on the nose. Abdomen with short hair. Length of head 1 mm.

Differs at once from *N. ripperti (cubanus)* in the very much smaller head with much shorter and more numerous hairs, in hairy nose, and shorter third joint of antennae.

CONSTRICOTERMES DISCOLOR, sp. nov.

Type.—A. M. N. H. *Paratype.*—M. C. Z., 10,084. Porto Rico:—Adjuntas, 8-12 June; Manati, 27-29 June. CULEBRA Island, 5 March (A. M. N. H.). Also from El Yunque, Porto Rico, February (Stejneger, U. S. N. M.)

Soldier.—Head pale yellowish brown, the nose rather more brown than rest of the body, antennae brown, pronotum brownish in front, dorsum of abdomen rather dark brown, venter and legs pale. Head pyriform, vertex not as much rounded as usual, below the middle it is faintly constricted, nose long and slender, all parts finely hairy, the hairs mostly very short, but a few longer ones; antennae slender, third joint but little longer than the second; legs and body finely haired. Length 3.2 mm.; head 1.4 mm.

By slight constriction of the head it is related to *C. toussainti* and *C. flavcolus*, but the nose is much longer and more slender than in either; the head is much paler than in *C. toussainti* and darker than in *C. flavcolus*; the head is more finely haired than in *C. toussainti*, and the antennae much longer than in *C. flavcolus*; the constriction of the head is less than in either of these species.

PLATE 1.

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- Fig. 1. *Rhinotermes marginalis*, head large soldier.
- Fig. 2. *Mirotermes hispaniolae*, head of soldier, top.
- Fig. 3. *Mirotermes hispaniolae*, head of soldier, side.
- Fig. 4. *Anoplotermes schwarzi*, pronotum.
- Fig. 5. *Rhinotermes marginalis*, head small soldier.
- Fig. 6. *Kalotermes mona*, head, soldier.
- Fig. 7. *Neotermes elevatus*, left jaw, and hind femur.
- Fig. 8. *Kalotermes posticus*, head of soldier, above.
- Fig. 9. *Nasutitermes creolina*, head of adult.
- Fig. 10. *Neotermes castaneus*, eye and ocellus of two forms.
- Fig. 11. *Neotermes elevatus*, head of soldier, side.
- Fig. 12. *Kalotermes posticus*, head of soldier, side.

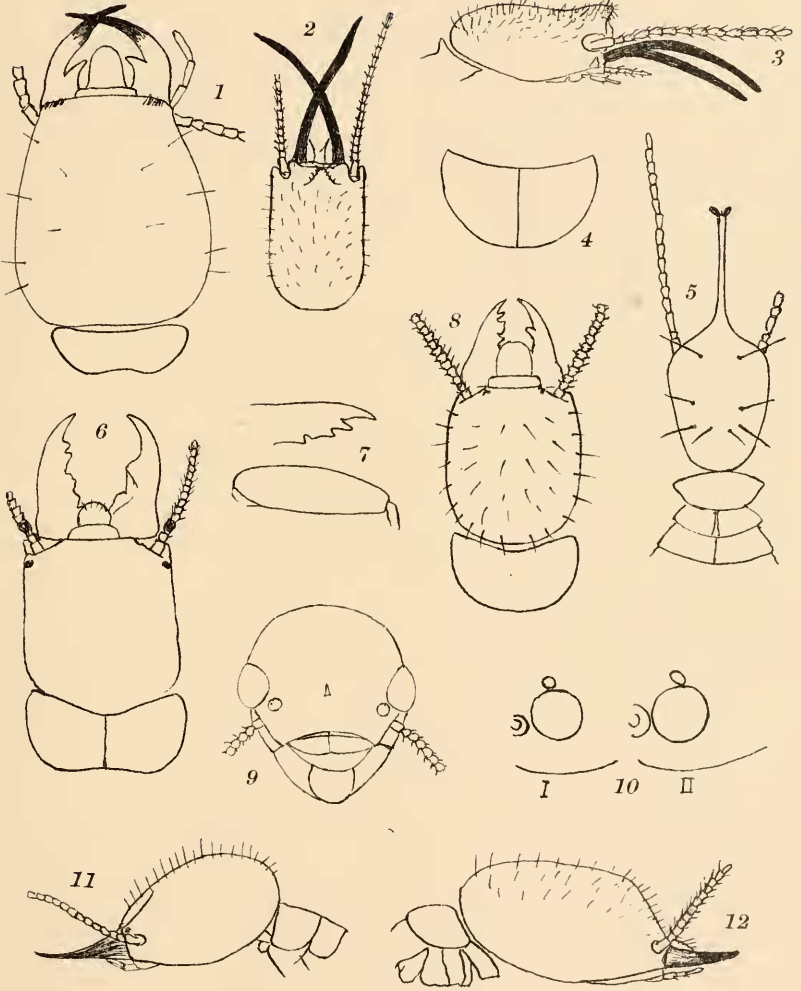
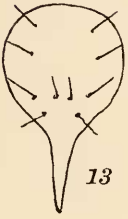


PLATE 2.

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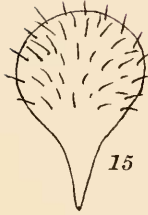
- Fig. 13. *Nasutitermes intermedius*, head of soldier, front.
- Fig. 14. *Constrictotermes pallidiceps*, head of soldier, front.
- Fig. 15. *Nasutitermes ripperti*, head of soldier, front.
- Fig. 16. *Constrictotermes flaveolus*, head of soldier, front.
- Fig. 17. *Nasutitermes creolina*, head of soldier, front.
- Fig. 18. *Nasutitermes hubbardi*, head of soldier, front.
- Fig. 19. *Constrictotermes toussainti*, head of soldier, front.
- Fig. 20. *Constrictotermes discolor*, head of soldier, front.
- Fig. 21. *Nasutitermes hubbardi*, head of soldier, side.
- Fig. 22. *Constrictotermes pallidiceps*, head of soldier, side.
- Fig. 23. *Prorhinotermes simplex*, head of soldier, above.
- Fig. 24. *Constrictotermes toussainti*, head of soldier, side.
- Fig. 25. *Nasutitermes intermedius*, head of soldier, side.
- Fig. 26. *Constrictotermes flaveolus*, head of soldier, side.
- Fig. 27. *Constrictotermes discolor*, head of soldier, side.



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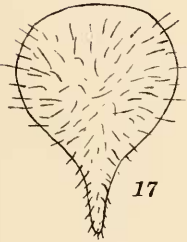
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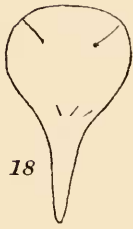
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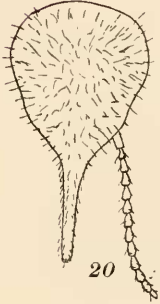
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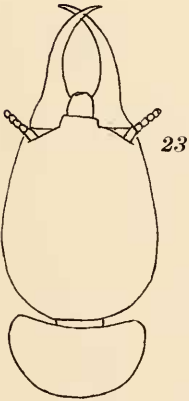
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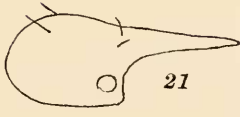
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